

Serial No. 10/055,542

August 20, 2003

Reply to Office Action of April 22, 2003

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

A1 1. (currently amended) A shaft sealing system for use in ~~[an annular shaped]~~ a seal cavity of a rotary mechanical device ~~[including an impeller]~~ having an output end and a motor end, the device being driven by a rotating shaft coupled to a motor, comprising

a substantially rigid cylindrical ~~[body]~~ bearing dimensioned to fit into the seal cavity and having an outer surface ~~[and an inner bore]~~ closely dimensioned to fit into the seal cavity with an inner bore closely dimensioned along the full length of the bearing to fit over the shaft at [the impeller] one end of the seal cavity[; and] to provide a bearing surface for the shaft.

~~[the cylindrical body having a cylindrical outer wall formed with a groove at the motor end and an internal groove in the inner bore at the location of the outer groove to form an integral lantern ring with at least one hole connecting the inner groove and outer groove for passage of seal water.]~~

2. (currently amended) The shaft sealing system of claim 1, wherein the ~~[body]~~ bearing is formed of a non-ferrous metal material.

3. (currently amended) The shaft sealing system of claim 1, wherein the ~~[body]~~ bearing is formed from a ~~[molybdenum and carbon]~~ filled thermoplastic material.

4. (currently amended) The shaft sealing system of claim ~~[[1,]]~~ 10, wherein the width of the outer groove ~~[at the motor end]~~ is narrower than the length of cylindrical outer wall ~~[at the impeller end.]~~ of the bearing.

5. (currently amended) The shaft sealing system of claim 1, wherein the ~~[cylindrical body]~~ bearing is split along a center-line.

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6. (original) The shaft sealing system of claim 5, wherein corresponding alignment holes are formed in each side of the split seal and alignment pins are positioned in the alignment holes.

A₁ 7. (currently amended) The shaft sealing system of claim 1, wherein the outer surface of ~~[cylindrical body]~~ the bearing includes a groove with an O-ring disposed therein.

8. (currently amended) The shaft sealing system of claim 1, further including at least one ~~[compressible]~~ packing ring disposed on the motor side of the rigid ~~[body]~~ bearing in the seal cavity.

9. (original) The shaft sealing system of claim 1, wherein the rotary device is a rotary pump.

10. (new) The shaft sealing system of claim 1, wherein the bearing has the cylindrical body having a cylindrical outer wall formed with a groove at the motor end and an internal groove in the inner bore at the location of the outer groove to form an integral lantern ring with at least one hole connecting the inner groove and outer groove for passage of seal fluid.

11. (new) The shaft sealing system of claim 10, wherein the seal fluid is water.

12. (new) The shaft sealing system of claim 1, wherein the bearing member is positioned at the output end of the seal cavity.

13. (new) The shaft sealing system of claim 3, wherein the thermoplastic material is filled with at least one of molybdenum, carbon and glass.

14. (new) The shaft sealing system of claim 8, wherein the at least one packing ring is a compressible packing ring.

15. (new) A method for providing a bearing surface for a rotary mechanical device having a seal cavity with an output end and motor end, comprising:

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providing a substantially rigid cylindrical bearing dimensioned to fit into the seal cavity and having an outer surface closely dimensioned to fit into the seal cavity and an inner bore closely dimensioned along the full length of the bearing to fit over the shaft at one end of the seal cavity;

inserting the substantially rigid bearing about the shaft; and
sealing the motor end of the seal cavity.

16. (new) The method of providing a bearing surface of claim 15, including the step of splitting the bearing and positioning the bearing parts about the shaft at the impeller end of the seal cavity.

17. (new) The method of providing a bearing surface of claim 16, further including the step of inserting at least one compressible sealing ring at the motor end of the bearing.
